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Atmospheric Chemistry and Physics Discussions

Interactive comment on "Investigation of airborne foot-and-mouth disease virus transmission during low-wind conditions in the early phase of the UK 2001 epidemic" *by* T. Mikkelsen et al.

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As the authors point out, modelling atmospheric dispersion can be quite a challenge for the stable boundary layer. This is particularly true for very stable conditions (clear skies, weak large-scale flow). For these conditions, the basic formulations for turbulent transport are suspect due partly to observational problems and due partly due to suspected inadequacies of Monin-Obukhov similarity theory or other stability functions. This problem pervades all models so that comparing different models is of only limited assistance with respect to this particularly feature of the dispersion. Similar comments could be made with respect to radiatively-driven slope flows. The authors could not have improved their study; their approach seems to be the most promising

of the approaches available. This is a problem with our basic understanding and modelling capabilities and will always lead to uncertainties. I found the comparison of the differently models and the influence of the topography on the wind direction with stable conditions particularly illuminating.

Interactive comment on Atmos. Chem. Phys. Discuss., 3, 677, 2003.